

SK-400 Drive Unit — Periodic Inspection Checklist

Assembly SK400-GB-000 rev D · Drawing SK400-GB-012 rev D (2026-09-08) · Coupling datasheet NK-DS-42, edition 2025-11 · Kaarlmoisa Metall · Document no. _____ (assign per Kaarlmoisa Metall numbering)

1. Scope, sources and intervals

Periodic in-service inspection of the SK-400 drive unit: coupling spider, bolted joints, shaft alignment, coupling guard and gearbox oil. Not covered: motor electrical testing, gearbox overhaul, commissioning of a new unit. Sources — **R1** = SK400-GB-012 rev D (drawing) · **R2** = SK400-GB-000 rev D (parts list) · **R3** = NK-DS-42 edition 2025-11 (coupling datasheet). Every limit in §4 cites one of these; calculated figures are marked **(derived)**.

Code	Interval — whichever falls first	Source
I-1	Weekly, or every 500 operating hours	Not stated in R1/R2/R3. Proposed routine round.
I-2	Every 6 months, or 2 000 operating hours	Not stated in R1/R2/R3. Proposed torque and oil audit.
I-3	Annually, or every 4 000 operating hours	R3 §4 — spider inspection interval
I-4	Every 2 years, or 10 000 operating hours	R1 note 5 — oil change interval

Each inspection level includes all checks of the levels below it.

Precedence — radial misalignment. R1 note 4 gives radial 0.2 mm; R3 §2 gives 0.22 mm. The drawing is the controlling document and is the tighter figure: **apply 0.2 mm**.

2. Before starting

- Stop the drive, isolate the motor supply and lock off. Verify zero energy at the motor terminals before removing the guard (R3 §5). Reference standard EN ISO 14118:2018 (not cited in R1/R2/R3).
- Let the gearbox cool. The housing and oil can be hot, and the spider is rated only to +90 °C (R3 §1).
- Record the operating-hour reading — every interval in §1 runs off it.
- Guard SK400-GB-130 is a fixed guard, removable only with a tool, and it **must be refitted before restart** (R1 note 6; R3 §5). Reference standard EN ISO 14120:2015.

3. Drive unit layout

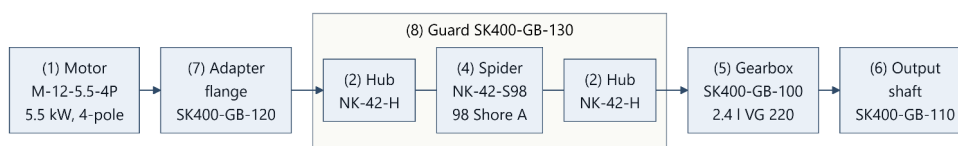


Figure 1 — SK-400 drive train, balloon numbers per SK400-GB-012 rev D; overall length 606 mm (R1). Check groups: A and B at the coupling, C1 at the flange joint, C2 and D at the guard, E at the gearbox.

4. Inspection checks

Enter the measured value where a field is provided; mark **OK** or **NOK**. Every NOK requires an entry in §7.

#	Check point	Limit / criterion — source	Int.	Measured	OK / NOK
A — Coupling alignment and hub spacing					
A1	Distance between coupling hubs, E	18 mm ± 0.5, at 4 points 90° apart — R1 note 3; R3 §1, §3.4	I-3	___ / ___ / ___ / ___ mm	
A2	Radial misalignment (offset)	≤ 0.2 mm — R1 note 4; see precedence note, §1	I-3	_____ mm	
A3	Angular misalignment	≤ 0.9° — R1 note 4; R3 §2	I-3	_____ °	
A4	Axial seating of spider	Seated without axial preload — R1 note 3	I-3	—	
A5	Hubs flush on shaft ends; hub set screws	Hubs flush with shaft ends, M8 set screw at 10 Nm, no witness of hub creep — R3 §3.1, §3.2	I-3	_____ Nm	
B — Coupling spider wear, NK-42-S98					
B1	Torsional backlash at the hub circumference	Replace the spider if backlash exceeds 5 mm — R3 §4	I-3	_____ mm	
B2	Cracks, tears, permanent deformation	Replace if any are visible — R3 §4	I-3	—	
B3	Spider surface condition	No hardening or glazing, no swelling from oil contact, no red PU dust inside the guard — not stated in R3	I-3	—	
B4	Replacement part	Genuine NK-42-S98 only, PU 98 Shore A (red) — R3 §1, §4; R2 line 6	I-3	—	
C — Bolt torques. Apply the stated value with a calibrated wrench; the fastener must not move. Do not exceed it.					

#	Check point	Limit / criterion — source	Int.	Measured	OK / NOK
C1	Motor to adapter flange SK400-GB-120 — 4 × ISO4017-M10x40-8.8	45 Nm audit. On reassembly: crosswise, two passes, 25 Nm then 45 Nm, lightly oiled thread — R1 note 1; R2 line 14	I-2	_____ Nm	
C2	Coupling guard SK400-GB-130 — 6 × ISO4762-M8x20-8.8	10 Nm — R1 note 2; R2 line 8	I-2	_____ Nm	
C3	Coupling hub set screws — 2 × M8	10 Nm — R3 §3.2	I-2	_____ Nm	
C4	ISO4032-M10-8 nuts (4) and ISO7089-10-200HV washers (8)	Torque — listed in R2 lines 9 and 10, but carry no balloon on R1 and no torque is stated. Confirm the joint before torquing.	I-2	—	
D — Coupling guard SK400-GB-130					
D1	Guard fitted and complete	Present, S235 perforated, no missing panels — R1 note 6; R2 line 7	I-1	—	
D2	All 6 guard screws present and tight	6 × ISO4762-M8x20-8.8 at 10 Nm — R1 note 2	I-1	—	
D3	Guard undamaged	No distortion, no torn or enlarged perforations, no rub marks from rotating parts — no criterion in R1/R2	I-1	—	
D4	Guard refitted before restart	Mandatory. The unit must not be run with the guard removed — R1 note 6; R3 §5	Every	—	
E — Oil and gearbox					
E1	Leakage at output shaft seal SK400-GB-140 (35×52×7 NBR) and housing joints	No running leak, no oil pooling under the unit — R2 line 11	I-1	—	
E2	Oil level	Fill quantity 2.4 l ISO VG 220 CLP. Level check point — no sight glass, dipstick or level plug appears in R1/R2	I-2	—	
E3	Breather plug SK400-GB-150 (M16×1.5)	Clear and unblocked; clean or replace if clogged — R2 line 13	I-2	—	
E4	Running noise and temperature; bearings 6207-2RS	No new noise or vibration, no abnormal temperature rise against the unit's baseline — no limit in R1/R2	I-1	—	
E5	Oil change	Drain at magnetic plug SK400-GB-160 (M16×1.5); refill 2.4 l ISO VG 220 CLP, item CLP-220 — R1 note 5; R2 lines 15, 16	I-4	_____ l	
E6	Magnetic drain plug debris	Clean the magnet. Fine grey paste is normal; bright metal flakes or chips are not — report before refilling. Not stated in R1/R2	I-4	—	

5. Measurement notes

Alignment, A1–A3. R3 §3.4 calls for a straight edge at four points 90° apart, but a straight edge will not resolve 0.2 mm — use it as the coarse check, then confirm A2 and A3 with a dial indicator (rim-and-face) or a laser tool. There is no ISO standard for alignment methodology; the formal reference is ANSI/ASA S2.75-2017/Part 1 (method only). **(Derived):** at the 85 mm hub outer diameter (R3 §1), 0.9° is a spread of $85 \times \tan 0.9^\circ \approx 1.3$ mm between the four E readings — but R1 holds E to ± 0.5 mm, so the permitted spread is 1.0 mm $\approx 0.67^\circ$. The E tolerance binds: four readings inside 18 ± 0.5 mm satisfy A3.

Backlash, B1. With the drive isolated, hold one hub and rotate the other by hand until the spider takes up; mark both hubs. Rotate fully the other way and mark again. The distance between the marks along the hub outer surface is the backlash. **(Derived):** at the 85 mm hub outer diameter the 5 mm limit is an arc of $5 \div (\pi \times 85) \times 360^\circ \approx 6.7^\circ$ of relative rotation. The NK-42 is rated T_{KN} 265 Nm (R3 §1) against roughly 36 Nm from a 5.5 kW 4-pole motor (nameplate speed not in R1/R2), so wear should show as gradual backlash growth, not overload damage; backlash rising faster than expected points to misalignment (group A), not to the spider.

Torque audit, C1–C3. The R1 values assume a **lightly oiled** thread; a dry or corroded thread reaches a different preload at the same torque. Clean and re-lubricate on reassembly, and replace any fastener with damaged threads or lost zinc coating using the same ISO designation and property class.

6. Inspection sequence

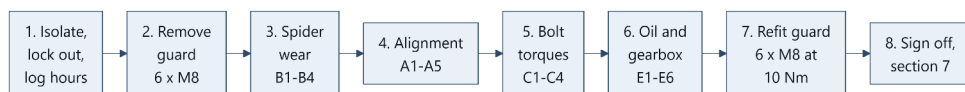


Figure 2 — Inspection sequence; limits and criteria are in §4. Spider wear (3) is checked before alignment (4) so that a worn spider is not mistaken for an alignment fault; if the spider is replaced, repeat step 4 with the new spider fitted. If alignment is corrected, re-torque the flange joint crosswise at 25 Nm then 45 Nm and repeat step 4. Step 7 is mandatory before restart. Every corrective action requires an entry in §7.

7. Sign-off sheet

Field	Entry	Field	Entry
Machine / line		Drive unit serial no.	
Date of inspection		Operating hours at inspection	
Inspection level (I-1 / I-2 / I-3 / I-4)		Previous inspection, date and hours	
Torque wrench ID / calibration due		Alignment instrument ID / calibration due	

Group	Checks	Result — OK / NOK / not in scope	Initials
A — Coupling alignment and hub spacing	A1–A5		
B — Coupling spider wear	B1–B4		
C — Bolt torques	C1–C4		
D — Coupling guard	D1–D4		
E — Oil and gearbox	E1–E6		

Findings, corrective action and parts replaced

#	Check ref.	Finding	Action taken / item no. fitted	By	Date
1					
2					
3					
4					

Release to service. I confirm that the checks recorded above were carried out on the unit identified here, that all findings are recorded, **and that coupling guard SK400-GB-130 has been refitted with all 6 screws tightened to 10 Nm** (R1 notes 2 and 6).

	Name (print)	Signature	Date
Inspected by			
Verified by / supervisor			
Released to service by			

Next inspection due: _____ operating hours, or _____ (date).

Prepared from SK400-GB-012 rev D, SK400-GB-000 rev D and NK-DS-42 edition 2025-11. No identifier or value has been introduced without a source.